What is claimed is:

1. A color-converting apparatus comprising:

an inputting portion receiving input color data comprising input gradation levels for at least three input color components for an input end device;

a color converting portion converting the input color data into output color data that comprises output gradation levels for at least three output color components for an output end device, the color converting portion executing the converting operation using conversion properties of the input end device and of the output end device;

a determining portion determining whether one of the input gradation levels in the input color data is equal to a predetermined maximum input gradation level; and

a correcting portion correcting the output color data into corrected output color data when the determining portion determines that one input gradation level in the input color data is equal to the predetermined maximum input gradation level, the corrected output color data comprising final output gradation levels for the at least three output color components,

the correcting portion including:

a maximum-gradation-level preserving portion correcting, into a predetermined maximum output gradation level, one output gradation level in the output color data

for one output color component that corresponds to one input color component whose input gradation level is equal to the predetermined maximum input gradation level, thereby setting the predetermined maximum output gradation level as a final output gradation level for the subject cutput color component in the corrected output color data;

an intermediate-gradation-level extracting portion extracting another output color component having an intermediate output gradation level that is intermediate among the output gradation levels in the output color data; and

a hue preserving portion correcting the intermediate output gradation level based on correction characteristics of the maximum-gradation-level preserving portion, and setting the corrected intermediate output gradation level as a final output gradation level for the extracted output color component in the corrected output color data.

2. A color-converting apparatus according to Claim 1, wherein the maximum-gradation-level preserving portion includes a highest-gradation-level extracting portion extracting an output color component having a highest output gradation level that is the highest among the output gradation levels in the output color data, the maximum-gradation-level preserving portion correcting the highest

output gradation level into the predetermined maximum output gradation level, and setting the predetermined maximum output gradation level as the final output gradation level for the extracted output color component in the corrected output color data.

3. A color-converting apparatus according to Claim 1, wherein the determining portion further determines whether the input gradation levels in the input color data are different from one another, and

wherein the correcting portion corrects the output color data into the corrected output color data when the determining portion determines that one input gradation level in the input color data is equal to the predetermined maximum input gradation level and that the input gradation levels in the input color data are different from one another.

4. A color-converting apparatus according to Claim 1, wherein the correction portion further includes a lowest-gradation-level extracting portion extracting another output color component having a lowest output gradation level that is the lowest among the output gradation levels in the output color data, and setting the lowest output gradation level without change as the final output gradation level for the extracted output color component in the corrected output color data.

5. A color-converting apparatus according to Claim 1, wherein the hue preserving portion corrects the intermediate output gradation level by a correction ratio corresponding to a ratio, at which the maximum-gradation-level preserving portion corrects the highest output gradation level into the predetermined maximum output gradation level.

6. A color-converting apparatus according to Claim 5, wherein the hue preserving portion corrects the intermediate output gradation level according to an equation of (MAX)*(M)/(L), wherein L indicates the highest output gradation level, M indicates the intermediate output gradation level, and MAX indicates the predetermined maximum output gradation level.

7. A color-converting apparatus according to Claim 5, wherein the hue preserving portion corrects the intermediate output gradation level according to an equation of (MAX-D)*(M-D)/(L-D)+D, wherein L indicates the highest output gradation level, M indicates the intermediate output gradation level, D indicates the lowest output gradation level, and MAX indicates the predetermined maximum output gradation level.

8. A color-converting apparatus according to Claim 1, further comprising a complementary color-data determining portion receiving the corrected output color data from the correcting portion and converting the corrected output color

data into complementary color data, the complementary color data comprising complementary gradation levels for at least three output complementary-color components for the output end device, the complementary gradation levels being equivalent to differences between the predetermined maximum output gradation level and the final output gradation levels in the corrected color data.

9. A color-converting method comprising:

receiving input color data comprising input gradation levels for at least three input color components for an input end device;

converting the input color data into output color data that comprises output gradation levels for at least three output color components for an output end device, the color converting step executing the converting operation using conversion properties of the input end device and of the output end device;

determining whether one of the input gradation levels in the input color data is equal to a predetermined maximum input gradation level; and

correcting the output color data into corrected output color data when the determining step determines that one input gradation level in the input color data is equal to the predetermined maximum input gradation level, the corrected output color data comprising final output

gradation levels for the at least three output color components,

the correcting step including:

preserving a maximum-gradation-state of the input color data by correcting, into a predetermined maximum output gradation level, one output gradation level in the output color data for one output color component that corresponds to one input color component whose input gradation level is equal to the predetermined maximum input gradation level, and by setting the predetermined maximum output gradation level as a final output gradation level for the subject output color component in the corrected output color data;

extracting another output color component having an intermediate output gradation level that is intermediate among the output gradation levels in the output color data; and

preserving hue of the input color data by correcting the intermediate output gradation level based on correction characteristics of the maximum-gradation-state preserving step and by setting the corrected intermediate output gradation level as a final output gradation level for the extracted output color component in the corrected output color data.

10. A color-converting method according to Claim 9,

wherein the maximum-gradation-state preserving step includes a highest-gradation-level extracting step extracting an output color component having a highest output gradation level that is the highest among the output gradation levels in the output color data, the maximum-gradation-state preserving step correcting the highest output gradation level into the predetermined maximum output gradation level, and setting the predetermined maximum output gradation level as the final output gradation level for the extracted output color component in the corrected output color data.

11. A color-converting method according to Claim 9, wherein the determining step further determines whether the input gradation levels in the input color data are different from one another, and

wherein the correcting step corrects the output color data into the corrected output color data when the determining step determines that one input gradation level in the input color data is equal to the predetermined maximum input gradation level and that the input gradation levels in the input color data are different from one another.

12. A color-converting method according to Claim 9, wherein the correction step further includes a lowest-gradation-level extracting step extracting another output color component having a lowest output gradation level that

is the lowest among the output gradation levels in the output color data, and setting the lowest output gradation level without change as the final output gradation level for the extracted output color component in the corrected output color data.

13. A color-converting method according to Claim 9, wherein the hue preserving step corrects the intermediate output gradation level by a correction ratio corresponding to a ratio, at which the maximum-gradation-state preserving step corrects the highest output gradation level into the predetermined maximum output gradation level.

14. A color-converting method according to Claim 13, wherein the hue preserving step corrects the intermediate output gradation level according to an equation of (MAX)*(M)/(L), wherein L indicates the highest output gradation level, M indicates the intermediate output gradation level, and MAX indicates the predetermined maximum output gradation level.

15. A color-converting method according to Claim 13, wherein the hue preserving step corrects the intermediate output gradation level according to an equation of (MAX-D)*(M-D)/(L-D)+D, wherein L indicates the highest output gradation level, M indicates the intermediate output gradation level, D indicates the lowest output gradation level, and MAX indicates the predetermined maximum output

gradation level.

16. A color-converting method according to Claim 9, further comprising a complementary color-data determining step receiving the corrected output color data from the correcting step and converting the corrected output color data into complementary color data, the complementary color data comprising complementary gradation levels for at least three output complementary-color components for the output end device, the complementary gradation levels being equivalent to differences between the predetermined maximum output gradation level and the final output gradation levels in the corrected color data.